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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,838	04/06/2001	Chan-Hoon Park	SEC.832	5078

7590 03/24/2004
JONES VOLENTINE, L.L.C.
SUITE 150
12200 SUNRISE VALLEY DRIVE
RESTON, VA 20191

EXAMINER

NGUYEN, HUNG

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,838

Applicant(s)

PARK, CHAN-HOON

Examiner

Hung Henry V Nguyen

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnit et al (U.S.Pat. 5,965,309) in view of Yoshioda et al (U.S.Pat. 6,051,349).

With respect to claims 1-8, Ausschnit et al discloses a system (see figures 19 and 20) for adjusting photo-exposure conditions in a semiconductor manufacturing (see col.1, lines 15-33 and figure 19) and substantially comprising all basic features of the instant claims such as: a photo-exposure unit (see col.17, 5-10, see figures 19-20) for adjusting photo exposure conditions of a photo-exposure step performed on a semiconductor device in the semiconductor manufacturing apparatus based on one or more adjustment signals; a pre-exposure step influence prediction unit (see col.17, lines 15-19) for obtaining information regarding a semiconductor

Art Unit: 2851

device in the manufacturing apparatus during a pre-exposure processing before the device is subjected to the photo-exposure step, the information including a value of a factor that affects a line width of a line formed on the semiconductor device in the photo-exposure step such as focus, exposure rate, and providing that information as feed forward data; an inspection unit (see col.17, lines 18-19; see col.19, line 23- through col.28, line 39) for generating an inspection value by measuring an aspect of the semiconductor device after it has been subjected to the photo-exposure step and providing the inspection value as feed back data, and a central processing unit (see col.17, lines 20-22; col.21, line 15 through col.22 line) for receiving the feed forward data and the feed back data and generating one or more adjustment signals based on the feed forward data and feed back data wherein the feed forward data is obtained by quantifying the obtained information and one or more adjustment signals are transmitted to the photo exposure unit via a processing unit in a real time or the signals are generated via calculated formula (see col.21, lines 30-45, for example). Ausschnit et al, thus, clearly teaches apparatus and corresponding method for processing photo-exposure by “adjusting exposure conditions” such as photo-exposure rate through feedback. Ausschnit does not expressly disclose adjusting a photo-exposure time for changing processing conditions (for example, in line width) “in accordance with one or more adjustment signals”. Yoshioka teaches an exposure control apparatus in a lithographic system having a photo-exposure unit (1,22) and a CPU (45) for obtaining the temperature data of the post baking temperature unit or the developing solution temperature based on the line width of the resist film/ patter size, and a sensor (65) is disposed within the resist coating and developing unit to obtain the line width of the resist film. Yoshioka teaches the information on the measurement of the line width is fed back so as to control at least

Art Unit: 2851

one of the resist coating condition, temperature of the resist solution...the light exposure conditions such as the light exposure time, and the focal length (see col.12, lines 44-54).

Yoshioka, then teaches the CPU (45) delivers a command signal to the light exposure device to control the exposure time based on the results of the line width measurement (see col.15, lines 15-22). As such, Yoshioka clearly teaches controlling of exposure time in response to a line width. In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Ausschnitt et al and Yoshioka et al to obtain the invention as specified in claims 1-8 of the present invention. It would have been obvious to a skilled artisan to apply and adjust the exposure time in response to a line width as suggested by Yoshioka into the system of Ausschnitt et al for the purpose of improving the resolution of the images to be printed whereby the quality of the system is greatly obtained.

Prior Art Made of Record

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ogata (U.S.Pat. 6,221,787) teaches an apparatus of forming resist film where the exposure time is controlled based on the detected thickness of the resist film. Therefore, the line width of a resist pattern can be precisely controlled (see claim 1 and 8).

Art Unit: 2851

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 571-272-2112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hvn
3/12/04


HENRY HUNG NGUYEN
PRIMARY EXAMINER